25-Mar-2013

I am pleased to announce availability of the Freescale Linux SDK for QorIQ Processors, v1.3.2 which includes support for T4, B4, P5, P4, P3, P2, P1 and MPC85xx processors.

See list of new features and changes in QorIQ SDK v1.3.2 in the **What's New** section below.

See download instructions in the **How to obtain this release** section below.

Thanks to all the members of the SDK team for their collective efforts for this release!

What's New

See list of changes for SDK 1.3.2 immediately below. SDK 1.3.1 new features and other changes for T4240/4160 and B4860/4420 are shown at bottom for reference. SDK 1.3.2 supports all processors and boards using a common U-Boot and Linux source base. SDK 1.3.2 replaces SDK 1.3.1, SDK 1.3 and prior releases.

SDK 1.3.2 Changes

- Adds support for P5040 rev 2 (replaces rev 1)
- Adds support for P3041 rev 2 and P2041/0 rev 2
- Adds support for new XAUI riser card: XAUI-TN8020
- Updates T4240QDS default frequencies (MHz): Platform 600, FMan 467. DDR sysclk change to 133. NOTE: board switch setting change required.
- Updates B4860QDS DDR frequency to 1867 MHz
- Adds support for Spansion flash on new revisions of P1020RDB, P1021RDB, P2020RDB and P2041RDB
- Updates U-Boot version to 2013.01
- Updates DPAA ethernet skbuf recycling algorithm to support the FMAN v3 for T4240/4160/B4860/4420

Defects fixed in SDK 1.3.2

- SDK-244764 - ethtool oops: smp_processor_id() in preempt-unsafe context
- SDK-241375 - On B4420QDS, offline ports are missing from the B4420 device tree. This could cause issues when using the Frame Manager Configuration tool.
- SDK-237711 - On B4860QDS, PCIe host mode will not function properly.
- SDK-236677 - On B4860QDS ping does not work in u-boot through FM1@DTSEC3 and FM1@DTSEC4 ports
- SDK-235432 - On T4240/4160 and B4860, FMAN stops receiving packets when FRA when using process 1 mode.
- SDK-234977 - On T4240/4160 and B4860/4420, USDPAA IPSecFwd application may return with configuration or runtime errors.
- SDK-234943 - On T4240, USDPAA applications like Reflector and IPFWD will not provide top performance.
- SDK-234910 - On T4240QDS, linux hangs during boot if USB gadget is enabled.
- SDK-234067 - On T4240/4160, when all cores within a cluster are disabled via the core disable register (COREDISR), the run control and power management (RCPM) unit triggers the cluster PLL to stop the clock, which causes a hang.
- SDK-233587 - On T4240/4160, PCI AER is not functioning properly with PCIe version 3.0

- SDK-232035 - When the board configured with more than 4G DDR, the RaidEngine driver will use dma bounce buffer which causes some issue on P5040DS
- SDK-231287 - On P3/P4/P5 platforms, 1Gbps ports … memory consumption …
- SDK-229056 - USDPAA applications are not working with HV2P scenario.
- SDK-227665 - A call trace can occur when running "iozone" with ext4 filesystem to test SD performance on P5040DS 64-bit.
- SDK-227071 - QMan never recovers after PFDR-related error interrupts.
- SDK-225138 - FMAN2-10G / XAUI card in Slot 1on P5040DS sometimes does not forward network traffic.

SDK 1.3.1 New features for T4240/4160 and B4860/4420

Processor and Board Support changes

- Adds support for T4240/4160 rev 1 and B4860/4420 rev 1 with e6500 64-bit Power Architecture® Core
- T4240QDS [SerDes 1, 28, 6, 12] : 2x XAUI, 7x SGMII, 2x RGMII, PCIe, SRIO, SATA - Default
- T4240QDS [SerDes 1, 1, 6, 6] : 4x XAUI, 2x RGMII, PCIe, SRIO
- B4860QDS [SerDes 0x2a, 0x8d] : 4x SGMII, SRIO, XFI (future)
- B4860QDS [SerDes 0x2a, 0xB2] : 4x SGMII, PCIe, XFI (future) - Default
- B4420QDS [SerDes 0x18, 0x9e] : 2x SGMII, PCIe - Default

Yocto and Toolchain

- Yocto/Poky 1.2
- gcc-4.6.2+svnr180516 (built for e6500), eglibc-2.13+svnr14157, binutils-2.21.1a, gdb-7.3a
- e6500 build target and code generation (new)
- 32-bit root file system

U-Boot

- U-Boot 2013.01 (updated)
- 36-bit physical addressing
- DDR3 with 3 way interleaving (T4240)
- NOR Flash via IFC
- NAND Flash via IFC
- FMan Independent Mode
- PHY support: SGMII, RGMII (T4240/4160), XAUI (T4240/4160)
- PCIe
- USB Host
- eSPI
- SDHC (T4240/4160)
- SATA (T4240/4160)
- Boot options:
- Boot from NOR
- Boot from NAND (B4860/4420)
- Boot from SRIO Boot (B4860)

Linux kernel core

- Linux kernel 3.0.51
- 64-bit effective, 36-bit physical addressing
- e6500 multithread support
- SMP with multithreading:
- 12 cores / 24 threads (T4240)
- 8 cores / 16 threads (T4160)

- 4 cores / 8 threads (B4860)
- 2 cores / 4 threads (B4420)
- Basic Altivec
- Huge Pages
- Power Management features:
- System sleep (LPM20)
- CPU hotplug (PH20)
- CPU idle (PW10)
- CPU freq (Clock Frequency Scaling)
- On-board thermal monitor

Linux kernel drivers

- BMan
- Ethernet DPAA / Linux DPAA networking
- FMan
- IEEE1588
- IFC NOR and NAND
- PCIe
- PHY support: SGMII, RGMII (T240), XAUI (T4240)
- PME (T4240/4160)
- QMan
- SATA (T4240/4160)
- SDHC (T4240/4160)
- SEC
- SPI
- USB Host
- New DPAA Features
- FMan: Storage Profiles
- QMan: Egress traffic management (CEETM)
- QMan: Waterfall Power Management

User Space Datapath Acceleration Architecture (USDPAA)

- BMan
- QMan
- FMan
- SEC
- PME (T4240/4160)
- RMan
- SRIO
- Applications: Reflector, IP Forward, IPSec Forward, Simple Crypto, PME Loopback

Other additions and changes

- Frame Manager Configuration Tool
- Linux Containers

For a list of known and fixed issues in SDK v1.3.2, please refer to “Known Issues” and “Fixed Issues” in the *SDK Overview* section n the SDK Users Manual.

How to obtain this release

QorIQ SDK v1.3.2 can be downloaded in its traditional ISO format. Alternatively, the SDK source code (U-Boot, Linux, RCW, Yocto) can be obtained using the Freescale external git server.

To obtain in ISO format, you'll need to download the Source ISO and optionally download 1 of the Binary ISOs. The Source ISO contains SDK source code, Yocto recipes, and SDK user documentation. This is the primary ISO for the SDK. The remaining 4 Binary ISOs contain binary images with 1 ISO for each Power Architecture core:

- e500v2 – P2020/10, P1025/16, P1023P1022/13, P1024/15, P1023/17, P1022/13, P1021/12, P1020/11, P1010/14, MPC8572, MPC8548, MPC8544, MPC8536
- e500mc – P4080/40, P3041, P2040/2041
- e5500 32-bit – P5040/21, P5020/10
- e5500 64-bit – P5040/21, P5020/10
- e6500 64-bit/32-bit – T4240/4160, B4860/4420

Each Binary ISO includes:

- Yocto cache binary file(s) which can reduce build times in Yocto
- Hard drive image
- Flash images for all boards that are associated with that architecture

SDK ISOs can be downloaded from these locations:

- External web download: http://www.freescale.com/webapp/sps/site/prod_summary.jsp?code=SDKLINUX
- Internal web download: http://linux.freescale.net/labDownload2/viewDownloads.php?Filter=sdk+v1.3.2&field=PL&Action=Filter

Source code for the SDK can be obtained via the Freescale external git server located here:
http://git.freescale.com/git/cgit.cgi/ppc/sdk

Source ISO can also be obtained via compass extranet:
http://compass.freescale.net/livelink/livelink?func=ll&objId=226578463